

MICROCIRCUIT COOLING FOR A TURBINE AIRFOIL

ABSTRACT

A turbine airfoil includes a plurality of cooling circuits embedded within the pressure and suction sidewalls and a first and a second flow passage. The first flow passage feeds the coolant fluid to the cooling circuits that are embedded only within the pressure sidewall and the second flow passage feeds the coolant fluid to the cooling circuits that are embedded only within the suction sidewall. A method embodiment of the present comprises placing the inlets of the cooling circuits embedded within the first sidewall in flow communication with only one of the flow passages and placing the inlets of the cooling circuits embedded within the second sidewall in flow communication with at least one of the other flow passages to minimize the difference in sink pressures of the suction and pressure sidewalls to ensure ingestion of the coolant fluid into the inlets of the respective cooling circuits.